EFFECTIVENESS OF BEHAVIOUR MODIFICATION IN MANAGING THE PROBLEM BEHAVIOUR AND SOCIAL INTERACTION AMONG AUTISTIC CHILDREN

Thesis Submitted in
Partial fulfillment of the
Degree of Master of Philosophy (M. Phil.)

By
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Avinashilingam Institute for Home Science and
Higher Education for Women
Coimbatore - 641043

January 2021

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The essence of all beautiful art, all great art, is gratitude

– Friedrich Nietzsche

I would like to admit my work as a special mark of respect at the feet of God Almighty and thank him for showering his blessings to complete my research.

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DECLARATION

Declaration

I declare that the dissertation entitled **"Effectiveness of Behaviour Modification in managing the Problem Behaviour and Social Interaction among Autistic Children"** submitted by me for the degree of Master of Philosophy (M. Phil.) is the record of work carried out by me during the period from July 2019 to December 2020 under the guidance of **Dr. S. Gayatridevi, M.A., M.Phil., Ph.D., Associate Professor and Head, Department of Psychology** and has not formed the basis for the award of any degree, Diploma, Associateship, Fellowship, Titles in this University or any other University or other similar Institution of Higher Learning.

S. Gayatridevi 7.1.2021

Signature of the Guide

S. Subhashini 7.1.2021

Signature of the Candidate

CERTIFICATE

Certificate

This is to certify that the dissertation entitled **"Effectiveness of Behaviour Modification in managing Problem Behaviour and Social Interaction among Autistic Children"** submitted by **S. Subhashini,** for the degree of Master of Philosophy (M.Phil.) is the record of work carried out by me during the period from July 2019 to December 2020 under the guidance of **Dr. S. Gayatridevi, M.A., M.Phil., Ph.D., Associate Professor and Head, Department of Psychology** and has not formed the basis for the award of any degree, Diploma, Associateship, Fellowship, Titles in this University or any other University or other similar Institution of Higher Learning.

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Signature of the Guide

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ABSTRACT

Abstract

The present study focused on finding the Effectiveness of Behaviour Modification in Managing the Problem Behaviours and the Social Interaction among Autistic Children. Thirty one Autistic Children in the age range of 5 to 12 years were selected by Purposive Sampling Method and administered by Problem Behaviour Checklist (1999) and Screen for Social Interaction (2012). The participants were administered by Behaviour Modification such as Reinforcement and Prompting. The results revealed that there was a significant difference in social interaction among autistic children based on siblings. There was a significant difference in the problem behaviour of autistic children based on influence of television. There were no significant differences in problem behaviour and social interaction based on usage of phone. Behaviour Modification helped in reducing Problem Behaviour and improved the Social Interaction among Autistic Children.

Keywords: Problem Behaviour, Social Interaction, Behaviour Modification, Autistic Children.

INTRODUCTION

Chapter 1
Introduction

"*When a family focuses on ability instead of the disability, all things are possible…Love and acceptance is key. We need to interact with those with autism by taking an interest in their interests.*" - ***Amanda Rae Ross***

Blueler (1911), Psychiatrist, used the term autism for the first time to describe his patient with schizophrenia. He observed his patient removing himself from the social interaction and become isolated self. The word Autism comes from the Greek word "autos" whose meaning is self. Blueler used this word to determine the withdrawal within self. The researchers in United States started using the term autism from the year 1940 to describe children with social and emotional problems. In the year 1944, Hans Asperger, a German Scientist, described milder level of autism which is now termed as Asperger Syndrome and reiterated that autism is a communication disorder. In 1987, Autism was categorised in DSM including the diagnostic criteria (Alli, 2019).

Autism Spectrum Disorder is a complex developmental condition characterized by persistent challenges in social interaction and communication along with the repetitive and restricted behaviours in individuals. Autism is characterized by pervasive impairments in several areas of functioning, one of which involves varying degrees of qualitative impairment in social interactions (American Psychiatric Association 2000). This is a developmental disability that occurs lifelong and could be diagnosed in the first years of children by analysing the child's language, communication development. Autism results from the neurological disorder that affects normal functioning of brain and communication (Fargo, 2013).

DSM 5 and Autism Spectrum Disorder

The children having persistent deficits in the areas of social interaction and communication along with the restricted and repeated pattern of behaviours are diagnosed to be Autistic Children. The diagnostic criteria for Autism Spectrum Disorder 299.00 are as follows:

A. Communication and Social Interaction Deficits
   i. Deficiency in Social Emotional Reciprocity, which includes inability or failure to respond to social interactions, reduction or avoidance of sharing of emotions, thoughts and their interests.

ii. Deficiency in Social Interaction and tend to have poor non verbal communicative behaviour. It includes lack of facial expressions, abnormalities in eye contact and deficits in understanding body language.

iii. Deficiency in starting, continuing and understanding relationships. Difficulty in sharing their play time, absence of interest in peers.

B. Repetitive and Restricted Behaviour

i. Repetitive motor movements along with the repeated use of objects and speech.

ii. Demanding on sameness (need to have same toy and same food for each day), inflexibility to routines, exhibiting distress to small changes.

iii. Performance of highly restricted behaviours that have abnormal intensity.

iv. Hyper or hypo active to sudden changes in sensory aspects of environment like temperature changes, specific sounds, textures, excessive smelling of objects and visual lights and its movements.

C. The occurrence of symptoms at the early developmental stages.

D. The symptoms cause impairment in social and occupational areas of functioning.

E. There are chances of diagnosing this as Intellectual Disability. The difference is that the social interaction will be low for Autism.

Functional Levels of Autism

Based on the criteria in DSM this classification was done,

Level 1 – Requires Support

The people in this category have difficulty initiating interactions, responding to social situations and require support for social communication. People exhibit decreased interests in social communication, inflexibility of behaviour, have difficulty in switching between the activities.

Level 2 – Require Substantial Support

People in this category have trouble with both verbal and nonverbal communication. They have difficulties in initiation of social interactions and also show abnormal responses to social situations from others. They might have difficulty in attention.

Level 3 – Require Very Substantial Support

People in this category have severe deficiencies in verbal and nonverbal communication skills which results in impairment in functioning. They have great difficulty in focusing and minimal responses to social overtures from others.

ICD 10 and Autism Spectrum Disorder

The diagnosis code for Autism is F84. It is characterized with the impairments in social communication and interaction associated with stereotyped, repetitive and repeated behaviours. The presence of the impairment will be identified from three years. The symptoms should not match the symptoms of others disorders like Pervasive Developmental Disorder; Specific Developmental Disorder, Reactive Attachment Disorder; Mental Retardation along with some associated Emotional or Behavioural Disorder; Schizophrenia and Rett's Syndrome.

Prevalence

The prevalence of autism within the overall population varies and the estimation ranges from 1 to 100. It was also found that autism reported more in males than females (Baird, 2006). According to the Centre for Disease Control and Prevention (CDC) (2016), Autism occurs among 1 in 54 children with a varied behaviours and abilities. The earliest prevalence studies also found a consistent sex difference, with boys being three to four times more likely to have autism than girls. In India across five regions, the Autism Spectrum Disorder prevalence was 1.4% among children aged 6-9 years (Arora, 2018).

Characteristics of Autism Spectrum Disorder

According to American Psychological Association, Autism Spectrum Disorder falls into major characteristics

1. Social Interaction Problems
   - Avoiding eye contact
   - Unable to express while talking or use less mimics
   - Struggle communicating with peers or others
   - Does not respond when others call the individual
   - Low in understanding social cues
   - Unable to use or understand body language
   - They reject or ignore the social approaches
2. Communication problems
   - Language development is very slow when compared to the individual of their age group.
   - It is hard for them to start a conversation.
   - Using idiosyncratic speech

3. Repetitive and restricted behaviours or activities

- Expressive unusual speech patterns
- Repetitive motor movements like Hand flapping, Toe walking. The children with Autism are not able to mingle with the typically developing peers in social situations because of usage of repetitive language, twirling around flapping their hands, rock back and also having difficulties in changing (Adams, Gouvosis, Vanlue & Waldron, 2004).
- Exhibiting intense interest activities
- Experiencing the sensory aspect of the world in their own way
- Excessive smiling or touching of toys frequently and make repetitive sounds
- Not responding to their name
- Delay in speech development
- Often repeating phrases
- Compulsive behaviour

Other than all this characteristics individual with Autism Spectrum Disorder may have difficulty in executing functioning tasks such as dressing themselves, packing things or even in completing their homework. They will be rigid and inflexible in thinking. They may be having eating problems, self injurious behaviours, sleeping problems and seizure activity (Pratt, Hopf & Quest, 2017).

Following are some of the observable characteristics

- Finicky eating – Eating only some foods with the similar texture and the smell.
- Avoiding some auditory Stimulation – Highly sensitive to sound and cover the ears and appear deaf. Avoid crowd and listen to TV commercials repeatedly
- They give no reaction or a strong reaction
- Removes clothes or shoes
- Lack of eye contact
- Unusual body movements like rocking in a chair or hand flapping, clapping
- Have difficulty with initiation of movements and stopping it.
- Does not play or mingle with other peers
- They will be like making the things to be in particular order and they hate being disorganized.
- Hyperactive, shows temper tantrums and also aggression towards self and others.

Etiology of Autism Spectrum Disorder

There is no known single cause for Autism Spectrum Disorder but many of the research suggested possible role of both genetic and environmental factors. Preand perinatal events like disorders of pregnancy, labor complications, fetal distress, low birth weight and premature birth have been studied and implicated in Autism. These risk factors are common in India, and have significant impact on the developmental outcome of children. A population based cohort study using a questionnaire to determine prenatal, perinatal and neonatal risk factors of Autism Spectrum Disorder, found advanced maternal age, fetal distress and gestational respiratory infections to be associated with Autism Spectrum Disorder (Juneja & Sairam, 2018).

✓ Genetic factor

The change occurs during gene mutation may be one of the reasons for developing Autism Spectrum Disorder. In children, developmental disorder can be associated with genetic disorders like Rett's syndrome or fragile syndrome. Genetic mutations may increase the risk of Autism Spectrum disorder. A few changes in the genes affect the growth of the brain along with the communication of the nerve cells or it shows the increasing severity symptoms. Even though some of the gene mutations occur spontaneously, few of them may be inherited.

Autism Spectrum Disorder is highly common in boys than girls, linked to the differences associated with the chromosome X (Chakrabarti & Fombonne,2005). The children with older biological sibling with Autism have the high risk of developing Autism Spectrum Disorder (Ozonoff, 2011).

✓ Neurobiological factor

Variations in the genetic codes may result in the abnormal development of structure and function of the brain, cognitive and behavioural abnormalities (Williams, 2012).

✓ Environmental factor

- Exposure of women to harmful radiations can causes gene mutations during pregnancy.
- Advanced parental age at the time of conception.
- Maternal diseases like diabetes, immune system disorders and obesity may lead to Autism Spectrum Disorder.
- Premature birth or very low birth weight.
- Any difficulty at the time of birth may affect oxygen supply to child brain.
- Parents consuming alcohol or psychiatric drugs
- Birth Complications associated with trauma

- Maternal Immigrations

These are several factors leading to the Developmental Disorder (Modabbernia, Velhorst & Reichenberg, 2017).

Autism Screening and Assessment Tools

Paediatrician screen the children by following tools

- Modified Checklist for Autism in Toddlers
- The Ages and Stages Questionnaire
- Screening Tool for Autism in Toddlers and Young Children
- Parent's Evaluation of Developmental Status

According to DSM 5 and ICD 10, the following tools are used by Psychologists and Certified Person to assess the Autism are

- The Child Autism Rating Scale
- The Autism Diagnostic Observation Schedule
- Autism Detection in Early Childhood
- The Autism Diagnostic Interview Revised
- The Social Communication Questionnaire

Treatment

It is important to have parent's involvement in treating the children and it was found to be effective in improving child's functioning (Boettcher, 2013).

Factors to be considered before starting the Treatment

1. The age of identification of the disorder, the different age group require different type of treatment.
2. The information regarding physical and mental health issues must be noted, like the diarrhoea, constipation, difficultly in eating, temper tantrums.
3. The level of functioning of the children must be identified.
4. The person's behaviours that are problematic and observable will be identified and noted.
5. The child's learning type (auditory, visual and kinaesthetic) must be known so that easy to build on with them.
6. The child's strength and weakness can be identified to treat to focus on their weakness and motivate them to learn and create opportunities the social skills.
7. The details regarding previous treatment and its effectiveness should be analyzed

The treatment methods are

Conventional Medications

Medications are given to treat some behavioural issues associated with Autism. The drugs in the medications can be used to treat Anxiety, Hyperactivity, Self Injurious Behaviour, Attention Deficits and Obsessive Compulsive Behaviours. The medications can be a part of the interventional programmes along with the other interventions.

Sensory Integration

The occupational therapist Jean Ayres gave the concept of sensory integration which indicates the process of brain receiving, organizing and interpreting information from the environment. The individuals with Autism have issues with the sensory processing and seek help to balance their nervous system. This intervention will be done by occupational therapist who are well trained in sensory integration for individuals with Autism Spectrum Disorder.

Floor Time Approach

It is a relationship based therapy and it involves the parent to work on the floor to play and interact with their child. It is sometime used along with the ABA therapies. It aimed to increase intimacy in relationships, two way communication, emotional thinking, self regulation and interest in the world. It was found that home based floor time approach was effective in improving social interaction and adaptive behaviours of children with Autism Spectrum Disorder (Liao, 2014).

Occupational Therapy

It focuses on teaching skills that help the individual to live independently. The skills such as daily living skills like dressing, eating, bathing. The primary goal of this therapy is to attain motor planning, praxis skills and to improve concrete thinking and play setting skills (Bumin, 2015).

Positive Behaviour Support

It helps an individual to reduce unwanted behaviour and teach acceptable behaviour. It helps in removing the unnecessary things that triggers or encourage the problem behaviours (Johnston, 2006). It aims in improving the behaviour and quality of life of the individual engaging in problem behaviours and the ways to be effective, acceptable, feasible and durable which can be easily implemented by educators, families and other supporters in home, school and community settings (Vismara & Rogers, 2010).

Assistive Technology

It includes devices which help the individual with autism to communicate and interact with others like electronic tablets and communication boards. One kind of assistive technology includes

Picture Exchange Communication System (PECS)

It was developed from the B. F. Skinner's Book, Verbal Behaviour and Broad Spectrum ABA. In this protocol the Therapist used strategies like specific prompting and reinforcement for the effective communication. This system consists of six phases which starts with teaching the individual to use single picture and get desired response from the communicative partner. The therapist teaches the discriminations in the pictures and describing the pictures in sentences. In advanced phases, the teacher uses the picture and ask question to the individual to answer in sentences. The initial goal of this system is to develop functional communication. The six phases are (i) Communication – the individual use pictures to show what they want (ii) Distance and persistence – the individual start showing pictures irrespective of place indicating what they want at present (iii) Picture discrimination – the individual start selecting the picture what they want from more pictures (iv) Sentence structure – the individual start using sentence like 'I want' (v) Responsive requesting – the individual use picture communication system when the individual were asked with a question and (vi) Commenting – the individual start using the commenting words like 'I feel', 'I see'. Picture exchange communication system was found to be effective in increasing the verbal speech and social communication behaviour and decreasing the problem behaviours in Autism (Christy, 2002).

Applied Behaviour Analysis (ABA)

Applied Behaviour Analysis concept was based on B. F. Skinner's Operant conditioning that all the learned behaviours have an antecedent and a consequence which can be shaped to change the consequences of our actions to repeat or change the behaviour. The effectiveness of Applied Behaviour Analysis and therapies based on Applied Behaviour Analysis such as Early Intensive Behavioural Intervention is high (Tiura, 2017). Applied Behaviour Analysis has become one common and well known treatment for children with Autism Spectrum Disorder accepted by professionals and used in schools and clinics (CDC).

There are few types of Applied Behaviour Analysis are

1. Pivotal Response Training

   This training aimed to increase a child's desire to learn, initiating communication with others and also monitor their own behaviour. It also focuses on increasing positive social behaviours. The training adopts naturalistic approach

which focuses on the targeting skills that are required to develop social and behaviour in the children (Lei & Ventola, 2017).

2. Discrete Trial Training

   It is an instructional teaching method and an experimental analysis of behaviour. It lies as a part of Early Intensive Behavioural Interventions programmes for children diagnosed with Autism. This method was significantly proved to help both the developmental and educational attainments for children with Autism Spectrum Disorder. It helps in developing skills including social, communication and academic skills (Booth & Keenan, 2018).

3. Verbal Behaviour Intervention

   It focus on communication and language. It encourages the individual with autism for learning the language by connecting the words with a purpose. This learning helps the individual to get the desired objects. In this intervention errorless teaching is provided which means using immediate and frequent prompts to ensure the individual providing the correct answer each time. It works on improving four distinct components of verbal behaviour given by Skinner which includes mands, tacts, echois and intra verbals (Tamg & Wier, 2013).

4. Incidental Teaching

   It is a naturalistic teaching method as a part of Applied Behaviour Analysis and it helps in improving the communication skills of children with Autism. This teaching helps in improving the communication skills of Autistic Children (Robinson, 2018).

Behaviour

Behaviour is the series of actions or reactions and the mannerism of an individual in response to either internal or external stimuli in the environment. The Psychologists classified behaviours into two categories of behaviours such as overt and covert. Overt behaviours are the ones that can be observed directly (Running, Blinking, etc.) and the covert behaviours are those which go on inside (Thinking, Decision Making).

Behaviour has few dimensions, they are

1. Frequency
2. Duration
3. Intensity
4. Latency

Problematic Behaviours

The behaviours that cause hindrance to social relations, communications and the individual's learning and causes harm to the individual, their family members, their friends and others in the society.

All the following criteria determines the behaviours that are considered problematic

- When the behaviours are dangerous to self and others like self harming, self biting, etc.
- When the behaviour causes unreasonable stress to others
- When the behaviour is socially deviant which includes stealing, telling lies
- If the problematic behaviours occurred frequently, for a long period of time and its intensity is high.

Types of Problem Behaviours

These categories had been taken from the Adaptive Behaviour Scale published by American Association of Mental Retardation

1. Violent and destructive behaviours includes causing physical harm to others and damaging the personal or all other things like clothes, books and also exhibiting violent temper tantrums.
2. Antisocial behaviour includes any behaviour that violates the basic rules. Also includes teasing, manipulating others, using bad language.
3. Rebellious behaviour includes ignoring rules and regulations, running away from school or home, misbehaving in social situations.
4. Untrustworthy behaviour
5. Withdrawal includes cheating, stealing and telling lies.
6. Stereotyped behaviour and odd mannerisms such as repetitive acts like hand flapping, body rocking, waving fingers.
7. Unacceptable vocal and eccentric habits includes behaviours like thumb sucking, grinding teeth, making unpleasant noises, repeating words and sounds again and again.
8. Self injurious behaviours includes hurting one self, pulling his own hair, hitting on the head.
9. Sexually aberrant behaviours includes masturbating, exposing own private parts in public, etc.
10. Psychological disturbances includes over estimation of own abilities, pretending to be ill, creating issues to get attention.

The interfering behaviours observed in children and youth with Autism Spectrum Disorder. They were Stereotyped movements with body or with objects, echolalia, insistence of sameness, difficulties with change and transition, self injurious behaviour, aggressive, running away from school and temper tantrums (Neitzel, 2010).

Social Interaction

According to Wing (1988), the social interaction difficulties of individuals with autism can be categorized into three groups: (a) Lack of social recognition (b) Lack of social communication (c) lack of social imitation and understanding. Children with Autism Spectrum Disorder have problem in communication, trouble in responding to others and difficulty in understanding the words and action produced by others. Isolating themselves from others will be reason for low Social Interaction. Social skills include greeting others, asking questions, communicating with others and asking others to join them with play or interaction. It also includes social responses like responding to greetings, questions and join others when they are calling for play or interaction. Social comprehension explained the complication of social responses and initiations. The individual must be able to understand the social rules and regulations, and must engage in the appropriate behaviours. Interaction happens when two responds to each other whereas Autistic Children face difficulties in this area. This skill is essential for an individual to have efficient progress in the society (Weiss, 2013).

Common Social Interaction Skills

- Play skills includes turn taking, sharing, cooperating and coordinating
- Emotional skills includes being aware of emotions and also understanding the feeling of themselves and others
- Conversation skills include both verbal and skills of body language.
- Problem solving skills includes reading the context, dealing with disagreements or making decisions in a social situation.

Social Skills Development for people with autism involves

1. Direct instruction and moments which are suitable to practice in realistic setting.
2. Focus on timing and attention.
3. Support will be given to enhance sensory integration and communication skills.
4. The behaviours will be learned which enriches the social outcomes like friendship and happiness.
5. Cognitive and language skills will be enriched.

Social skills can be taught by different people in different settings like home, school and in community. A few combined together to practice and generalise social skills in natural environment is known as social skills group. Other professionals who support social skills include: Occupational Therapists, Behavioural Therapists, School Psychologists, General Education Teachers.

Social Skills Group will be effective when they follow

- Provide structure and predictability
- Divide abstract social concepts into concrete actions
- Working in pair or group to develop cooperation and partnership
- Providing multiple learning opportunities
- Promote self awareness and self esteem
- Develop their level of language

Behaviour Modification

Behavior modification helps to reinforce the desirable behaviors and remove or reduce the undesirable or maladaptive behaviors. It also helps in making the caregivers or parents regarding the handling of individual before, during, after and also between the episodes of problem behaviours. Behaviour modification is a technique where a specific change in the observable behaviour is produced by arranging the environmental events (Joshi & Pandya, 2005). In this process, antecedents and consequences must be identified for the problem behaviour (Scott, Jain & Cogburn, 2020). It is an important part in youngster's life with Autism. The behaviour is observable and measurable. The ABC model is used and found to be effective while focusing on changing or modifying behaviour.

A – Antecedent – The event responsible for the behaviour.

B – Behaviour – The action or response to the event which can be seen and measure.

C – Consequence – The event that precedes the behaviour, which lies as a reason for the behaviour to reoccur.

Principles of Behavior Modification

- It means changing and modifying behavior which are observable, measurable and recordable.
- It is based on the principles of learning that is observation, conditioning, cognitive, etc.
- It is based on the concept that all the behaviours are learnt. Using the same principles, the principles can be unlearnt.

- It helps both in increasing the desirable behaviour and decreasing the undesirable behaviour.

Behaviour Modification is a result of operant conditioning. The operant conditioning includes the following techniques:

1. Reinforcement
2. Punishment

Reinforcement

Reinforcement is applied to strengthen the behaviour which is coming as a result of antecedent stimuli. The main goal of this technique is to increase the behaviour. This effect is measured by frequency of behaviour, longer duration, greater magnitude. It is of two types – Positive Reinforcement and Negative Reinforcement. Positive reinforcement is applied when it has the chances of increasing the desirable behaviour in the similar environment, e.g. when a teacher praises a student by giving him/her a star for his good answer. The praise that he/she receives is a positive reinforce to strengthen the students behaviour of answering the teacher. Negative reinforcement is applied when the rate of behaviour increases by removing the stimulus that creates an aversion in an individual e.g. girl complete her homework on time, and this behaviour is followed by negative reinforcement by the parent stops beating and scolding the child to complete the homework. So here stopping the aversion of beating and scolding acts as a negative reinforcement. There are two kinds of negative reinforcement (1) Escape and (2) Active Avoidance.

Schedules of Reinforcement

1. Fixed Ratio – the reinforcement will be given for every n^{th} response. The therapist can decide the n like for every two correct answers, teacher will give a chocolate.
2. Variable Ratio – the reinforcement will be given with unpredictable number of responses. The teacher gives chocolate after two correct answers then four correct answers and next after three correct answers.
3. Fixed Interval – the reinforcement will be given after n amount of time. The teacher gives chocolate if the child gives correct response in two minutes.
4. Variable interval – the reinforcement will be given at an unpredictable amount of time. The teacher gives chocolate after 2 minutes and then can change the interval for four minutes.

Skinner's research on schedules of reinforcement shows that they are effective in modifying, controlling and shaping behaviour (Schultz, 2013).

Differential Reinforcement

The reinforcement is provided when the individual responded in an appropriate way, ignoring the interfering behaviours. It is applicable when the individual is not engaging in the inappropriate behaviour and when the individual is engaging in desirable behaviour rather than inappropriate behaviours. The differential reinforcement focuses on decreasing the interfering behaviour and increasing the functional behaviour (Bogin & Sullivan, 2009). This reinforcement was found to be effective in reducing stereotypical behaviour and also the undesirable behaviour (Minazir & Kavitha, 2016).

Punishment

Punishment is applied in order to decrease the occurrence of undesirable behaviours which is coming as a result of antecedent stimuli. It is of two types – Positive punishment and negative punishment. Positive punishment is application of unpleasant stimuli to stop the undesirable behaviour of the individual e.g., a teacher yells at a student when he or she runs into the playground without permission. The yelling stopped if the student stop running into the playground. The yelling acts as a positive punishment because the teacher adds an unpleasant stimulus. Negative punishment is removal of pleasant stimuli and to decrease the response of undesirable behaviour e.g., a child showed aggressiveness when he/she want ice cream. His father ignores him, making him not to continue the same behaviour for achieving his desire. The removal of attention from his father acts as a negative punishment because the pleasant stimulus (attention) is taken away from the child.

Extinction

Extinction is applied to stop the reinforcement to behaviour. It is applicable when the reinforcement is stopped and it manifests the behaviour by fading of reinforced response overtime. Extinction burst means the individual experiences a sudden and temporary increase in response frequency, along with the elimination of behaviour and emotional response or aggressive behaviour may also occur.

Procedures to establish a New Behaviour

There are few techniques helps in establishing a new behaviour by eliminating the undesirable behaviours.

1. Shaping is used to develop a target behaviour that an individual does not have at present.
2. Prompting and Transfer of Stimulus Control

3. Chaining is a multi step task and then break them down into sequence of smaller tasks. The first step alone will be taught to the individual and not even the sample of future step will be discussed until the first step is achieved.
4. Behavioural Skills Training procedures

Approaches in Behaviour Modification

- Modelling emphasis the teaching of an individual to remove or add a certain behaviour.
- Cueing helps a person to perform certain behaviour at a specific time.
- Discrimination teaches a person to behave in a way for particular stimuli. The reward or reinforcement will be given after the appropriate response had been given.
- Substitution means replacing current reinforcement which no longer prompt the desired behaviour with new reinforcement.
- Satiation means letting a person performing an undesired behaviour.
- Avoidance teaches an individual to avoid the unpleasant situation.
- Fear reduction helps in reducing fear of an individual by exposing a stimulus that may induce fear.

Need for the Study

The prevalence rate of Autism in India is 0.23% which is getting higher in this current era. Autism is a life long condition but the quality of life of each individual can be highly improved with the great care and support either by parents, caregivers or the society. The parents and caregivers of the autistic children face many difficulties and were not aware of how to handle them. This study was carried out to find the effective method to overcome the issues faced by the autistic children and their parents/caregivers. The major issues of autistic children were problematic behaviours and deficits in social interaction and communication. Each and every individual vary in their behaviour which causes different consequences to the individual. This may be due to the differences they have in their brain development and processing. The problem behaviours not only affect themselves but it also disturbs the others. The most commonly occurring problem behaviours are destructive, antisocial, stereotyped behaviour, self injurious and psychologically disturbing in nature. The autistic individuals are lacking in eye contact, concentration, attention, unaware of replying to others, etc. To enhance all these problems, it is necessary to know at what situation the child react in a particular way that is considered as undesirable one. Behaviour Modification has the advantage that it can help to change the undesired or unwanted behaviours to desired or wanted behaviours. Behaviour modification can be taught to the parents to handle their children in an effective manner. This

study involved in using the behaviour modification techniques to reduce the problem behaviour of the autistic children and to teach them the social interaction to converse with their peers and others and maintain interaction.

REVIEW OF LITERATURE

Chapter 2

Review of Literature

The review of earlier studies conducted in related areas of prime importance in any research to formulate effective methodology. The reviews on present study "Effectiveness of Behaviour Modification in managing Problem Behaviour and Social Interaction among Autistic Children".

Bene and Lapiva (2020) conducted a meta analysis study with 16 sibling mediated interventional studies. All the interventional studies focused on the siblings teaching their autistic brother/ sister. The siblings teach their autistic brother/ sister with the play skills, functional skills or to decrease the unwanted behaviours. The study results showed that the siblings acquired enough knowledge to implement the different interventions to apply to their autistic sibling. They found a positive effect on the autistic sibling at the post intervention.

Andzik, Smith and Neef (2020) performed on the usage of a token economy to treat escape maintained problem behaviour without extinction. They used the delayed reinforcement token system for treating the escape maintained problem behaviour of children with Autism Spectrum Disorder. They used a multi probing design which helped in increase in compliance and reduction in problem behaviours for all the participants and concluded that for the elimination of the escape maintained problem behaviour in children with autism, extinction was not necessary.

Prasad and Pramod (2020) explored on behaviour modification techniques for autism. They used prompting and secondary reinforcement for reducing tantrums and behaviour problems. The results indicated that there was a progressive improvement in children with Autistic Spectrum Disorder and proved the effectiveness of behaviour modification techniques in treating autism among young children.

Akemoglu and Tomeny (2020) examined on parent's shared reading intervention for promoting communication skills of pre schoolers with Autism Spectrum Disorder. They selected three mothers of autistic children and trained them with the usage of a set of reading techniques and naturalistic teaching strategies. They had used multiple baseline designs to find the effectiveness. The results indicated that the initiation of communicative acts occur in their children where mothers used time delay concept for communication.

Downie, Wong, Kovshoff, Cortese and Hadwin (2020) carried out a meta analytical study to find the differences in gender in social interaction and communication among autistic and non autistic children and adolescents. They used Appraisal Tool for Cross Sectional Studies for finding the quality of the study. The analysis revealed that female individuals with Autism Spectrum Disorder had significantly good social communication skills and social interaction than autistic males.

Kristensen, Jones and Richards (2020) analyzed on the prevalence of Self Injurious Behaviour in Autism. They unruffled data from 37 papers consisted of 14,379 participants with majority of self injury in autism. They found that the most common form of self injurious behaviour is hand hitting topography and the least common form of self injurious behaviour is self cutting. The study revealed that females obtained a higher rate of prevalence than males. The result confirmed that a high rate of prevalence in self injury in autism.

Slocum, Yatros, Sheithauer (2020) developed a treatment for hand flapping in children with Autistic Spectrum Disorder. Two subjects engaged in hand flapping diagnosed with Autistic Spectrum Disorder were joined for the study and used non contingent reinforcement to reduce the target behaviour by encouraging the matched stimuli. The study results showed that hand flapping could be decreased and remain low if the reinforcement schedule gets thinned. It elucidates that non contingent reinforcement can treat problem behaviour.

Reyes and Scarper (2020) found out the differences between emotionality, emotion regulation and expression of emotions in Autistic Children and their typically developing peers. They also aimed to provoke the link between these areas with social skills along with behavioural, emotional and social problems in Autistic Spectrum Disorder. In this study they included 44, 22 children with Autistic Spectrum Disorder and 22 of their peers. The results indicated that the social skills associated with the enhanced emotional regulation and increased emotion expression and decreased emotionality. They also concluded from their study that an increase in emotion regulation results in increased prosocial behaviour decreased peer problems and emotional problems in Autistic Spectrum Disorder.

Bharathi, Venugopal and Vellingiri (2019) carried out Music therapy as a therapeutic intervention to improve the Social Skills of the Autistic Children. Pre test, Post test and Follow-up Design was used and 54 children were randomly selected and assigned to two groups: Active and Passive. The duration of music therapy was three months, and they also conducted follow-up sessions for three months. They data were analyzed by SPSS to find out t test and ANOVA to compare the groups. The post test analysis of covariance results showed an increase in social skill scores. They also found the effectiveness of music therapy during the follow-up phase.

Music Therapy helped in developing the communication of the autistic children with the improvement in their ability to understand, respond and maintain their interaction.

Itzchak, Nachshon and Zachor (2019) examined on the severity and functioning of autism by having older and younger siblings, the sex of the index child. One hundred and fifty Autistic Spectrum Disorder participants were selected and divided into three equal groups (no sibling, older and younger siblings). The results revealed that children with Autistic Spectrum Disorder with older siblings showed less severe social interaction with deficits and better social adaptive skills. Social functioning was better for those who have a high number of siblings. The older siblings positively influence the social skills of their younger sibling with Autistic Spectrum Disorder.

Schreen, Koot and Begeer (2019) examined the longitudinal stability and change of Social Interaction Style in children and adolescents with Autistic Spectrum Disorder and average intellectual ability. The Wings Subtype Questionnaire was used to collect data. The results indicated that the Social Interaction Style remains the same even after four years for the majority of the population. This study concludes that Social Interaction Style might be a relatively stable trait across adolescence.

Raulstan, Hanseen, Machalicek, Mclnytre and Carnett (2019) surveyed behavioural practices on Interventions for repetitive behaviours in Young Children with Autism. In this study, the authors investigated 128 behaviour analysts who were implementing interventions of young children with autism. From the reviews, they found 16 focused interventions and one assessment (functional analysis) were identified as the practices they followed to reduce Repetitive Behaviours in young children with autism. Majority of the participants' perceived evidence based practices to be effective in reducing Repetitive Behaviours replacing with sustainable behaviour change.

Lindor, Sivaratnam, May, Stefanac, Howells and Rinehart (2019) found out the link between Autism Spectrum Disorder symptom severity and problem behaviour modifying by presence/ degree of having sleep disturbance. Forty males with Autism Spectrum Disorder age ranging from 5 – 12 were selected for the study. They were administered with the Social Responsiveness Scale, Child Behaviour Check List and Children's Sleep Habits Questionnaire to obtain information about Autism Spectrum Disorder symptom severity, problem behaviour and sleep habits. Results indicated that the relationship between Autism Spectrum Disorder symptom severity and problem behaviour for individuals depends upon the degree of sleep disturbances experienced by them. The problem behaviour was apparent across all individuals irrespective of Autism Spectrum Disorder symptom severity.

Skoukou (2019) found out the level of social interaction of preschool autistic children. Children with disabilities had significant impairment in their social interaction level and all of their general social skills.

Hilton, Ratcliff, Collins, Elanagan and Hong (2019) conducted a study on flourishing differences in parental perception of the children with and without Autism Spectrum Disorder Flourishing in Children with Autism Spectrum Disorders. Total participants were 34,171 in the age range of 6 to 17 years were selected and the control group consisted of 812 with autism. The results revealed that the children with autistic spectrum disorder had significant differences and lower scores in social competence and behavioural control when compared to control group. They reiterated that social competence and behavioural control were the indicators of the flourishing among children with Autistic Spectrum Disorder.

Plavnick and Duenas (2018) studied the effects of Video Based Group Instruction on Adolescents with Autism Spectrum Disorders for spontaneous Social Interaction. Four adolescents with Autistic Spectrum Disorder were selected for the study. During the play or group activities, they were taught to interact with peers by asking them the social questions or commenting on others. Participants were made to see a video model and then given opportunities to perform social behaviour when playing a game with each other. It was found that there was an increase in social interaction skills and it might be useful for teaching social skills under natural conditions.

Newcomb and Hagopian (2018) conducted a study on treatment of severe problem behaviour in autistic children and intellectual disabilities. Applied Behaviour Analysis was a standard treatment for behaviour problems in children. It also explained many interventions like corresponding function based treatment could be implemented when environmental disabilities were identified to decrease or eliminate problem behaviour as well as teaching the individuals to engage in more appropriate and alternative behaviour.

Ladarola, Harrison and Scahill (2018) examined the impact of Parent Training and Psycho education on parent outcomes. Parenting Stress Index, Parent Sense of Competence and Caregiver Strain Questionnaire were administrated to the parents. The result suggested that Parental Training on Behavioural strategies reduces the disruptive behaviour of autistic children.

Dere (2018) analysed the social play and social interaction of an autistic child in the inclusive educational setting. The participants were administered by Social Play Observation Form, Social Interaction Observation Form, and Activity Adaptation Form along with parent interview. Video was recorded when the autistic child involved in free play, and also collected

from the child's mother. The author used descriptive analysis technique for data analysis. The result indicated that the autistic child in an inclusive setting had a limited number of social play and social interactions. Even though the chances were limited, but they get a good impact in the social behaviours of autistic children.

Toscano, Carvalho and Ferreira (2018) studied the effect of 48 weeks exercise based intervention on the autistic traits and perceived quality of life in autism spectrum disorder children. They selected 64 children with Autistic Spectrum Disorder and allotted them randomly to experimental and control groups. Multilevel Regression Modelling was used and the results showed the beneficial effects on metabolic profile, autism traits and quality of life from parent's perception. They also reiterated that the support of physical activities and exercises are the most important therapeutic intervention for children with Autistic Spectrum Disorder.

MacNaul and Neely (2018) conducted a systematic review on the application of differential reinforcement without extinction for individuals with an Autistic Spectrum Disorder. They included ten studies which come under their inclusion criteria. The nine studies had positive effects and one with mixed outcomes. Among the ten studies, five studies have the results of reducing the problem behaviour by manipulating the different reinforcements - the four studies achieved by controlling the schedules of reinforcement. One study with mixed effects required extinction. So, from the result of this study, the differential reinforcement for changing the behaviour will be sufficient for the treatment of problematic/ challenging behaviour in an individual with autism.

Balakrishnan and Alias (2017) investigated on the effectiveness of social stories in improving the social interaction of autistic children. Four autistic children in the age range of 5 to 8 were selected and ABAB design was used and the results showed that the positive impact of social stories in enhancing the social interaction of autistic children.

Alexander (2017) found out the effectiveness of behaviour modification techniques on problem behaviours in differently abled children. In this study, they targeted to change the problem behaviours of banging head, pinching others; excessive crying and using swear words. They used physical restraint and extinction to form attention, followed by differential reinforcement of alternative behaviour. The continuous and consistent therapy measurably shows a significant reduction of the problem behaviours in one month.

Pas, Johnson, Larson, Brandenburg, Church and Bradshaw (2016) conducted a study on reducing problem behaviours among students with autism spectrum disorders. This study targeted the skill development of teachers in promoting a positive outcome for students with

Autistic Spectrum Disorder. Nineteen teachers working in the non public educational setting who served severe and moderate children with Autistic Spectrum Disorder were included for the study and the results revealed that coaching and guided practice could be perceived to reduce the problem behaviour among students with Autistic Spectrum Disorder.

Lindgren, Wacker and Waldron (2016) examined the implementation of Applied Behaviour Analysis to parents and treating the problem behaviour of autistic children. They demonstrated that 3 services such as Home Therapy, Clinic Based Telehealth and Home Based Telehealth for ninety four children. The findings concluded that the three groups were successful in reducing the problem behaviour by training the parents.

Wong (2015) explored on evidence based practices for Children, Youth and Young Adults with an Autism Spectrum Disorder. In this study, they found 27 focused intervention practices that met the criteria for Evidence Based Interaction among 27, six were entirely new evidence based practices. It helps to create an Individualized Intervention Programme for children and youth with Autistic Spectrum Disorder.

Liu, Moore and Anderson (2015) scrutinized on improving the social skills of the child with autism through self management training. The Participants was 9 years old with Autism Spectrum Disorder and Multiple Baseline Across Behaviour Design was used. The results showed that the intervention was useful for the improvement of social skills.

Deckers, Roelofs, Muris and Rinck (2014) found out the desire for Social Interaction in Children with Autism Spectrum Disorders. They included children with Autistic Spectrum Disorder and typically developing children. Both the groups were made to complete both the implicit measure that is facing turn approach avoidance task and explicit measure that is self report of the desire for social interaction. The results revealed that Autistic Spectrum Disorder children had stronger tendency to pull both social and non social stimuli towards them and the detailed assessment revealed that they scored low and it implies that less desire for social interaction than typically developed children.

Boonen, Maljaars, Lambrechts, Zink, Leeuwen and Neons (2014) examined on Behaviour Problems among School Aged Children with Autistic Spectrum Disorder and to find the association between Children's Communicative Difficulties and Parenting Behaviours. Two hundred and six children were selected, among them 187 children with Autistic Spectrum Disorder and 187 without Autistic Spectrum Disorder of age groups 6 to 12 years. The result indicated that negative controlling parenting behaviours and language difficulties of the child made a significant contribution to externalizing problem behaviour for the Autistic Spectrum Disorder.

Boner (2014) carried out a qualitative study on How Parents Use Behaviour Modification with their Children having Autism Spectrum Disorder and used Qualitative Interviews to gather information for research question from 7 participants and Snowball Sampling Technique was used. Behaviour Modification Techniques used at home decreased the symptoms associated with Autism Spectrum Disorder and it tends to be consistent and constant depending on the child's uniqueness and the level of development, behaviour modification was also applied uniquely.

Fargo (2013) evaluated on the effect of virtual reality for teaching social skills for 6 students with autism. Multiple baseline design with AB phases for analysis was used and recorded the frequency of the initiation, responses to questions, maintaining a conversation and prompt rating scores. The results revealed that the participants improved in their social skills and they also liked to learn in such a mode of learning.

Boyd, McDonough and Bodfish (2012) executed on Evidence Based Behavioural Interventions for Repetitive Behaviours in Autism by screening many literature. It was found that there were evidence based practices to treat lower order Repetitive Behaviours in Autistic Spectrum Disorder, but there was a lack while focusing on higher order Repetitive Behaviours like insistence on sameness. It concluded that ABA based and focused Behavioural Intervention Strategies were effective in reducing both the lower order and higher order Repetitive Behaviours found in an individual with Autism.

Scheeren, Koot and Begeer (2012) scrutinized on Social Interaction Style of Children and Adolescents with High Functioning Autism Spectrum Disorder. They examined the differences with the severity of autistic symptoms and comorbid disruptive behaviour problems, the child psychosocial health and executive functioning and perspective taking skills. One hundred and fifty six children and adolescents in the age range of 6 to 19 years with high functioning autism spectrum disorder were selected and administered by Wing Subgroups Questionnaire to determine the Autism Children and Adolescent's Social Interaction Style. An active but odd social interaction style was positively associated with symptoms of Autism, Attention Deficit and Hyperactivity. It also concluded that an active but odd social interaction style was positively associated with executive functioning problems and negatively with children's psycho social health.

Kozlowski, Matson and Rieske (2012) found out the gender differences in challenging behaviours in Autistic Children and Adolescents. Three Hundred and Ninety one participants with Autism Spectrum Disorder in the age range of 2 to 17 years were selected and divided into four groups Male with Autistic Spectrum Disorder, Male without Autistic Spectrum

Disorder, Female with Autistic Spectrum Disorder and Female without Autistic Spectrum Disorder. The results revealed that gender did not affect rates of challenging behaviour among children with and without Autism Spectrum Disorder.

LeBlanc and Gillis (2012) analyzed the importance of behavioural interventions for extreme behaviours. It revealed that the only well established treatment for young children with Autistic Spectrum Disorder is the behavioural treatment. It gives an overview model of behavioural therapy and it also helps the practitioners to know the importance of behavioural therapy. The practitioners further guide families with the behavioural treatment whose children need behavioural treatment services.

Humphrey and Symes (2011) carried out a study on the peer interaction patterns of students with Autism Spectrum Disorders in the main stream setting. They selected a group of 38 adolescents with Autism Spectrum Disorders from 12 main stream secondary schools and kept in structural observation over two days. They were compared with the group of 35 adolescents with dyslexia and 38 with no identified Special Educational Needs. The results revealed that the participants with Autism Spectrum Disorders spent more time engaged in Solitary Behaviours, less time involved in Cooperative Interaction with Peers and more time engaging in reactive Aggression towards peers than the comparative group.

Ozdemir (2010) focused on the Different Social Situations which cause Confusions in Autistic Children and the implementation of Social Stories as Interventional Technique. Overall, the review concluded that Social Stories could be applied to reduce Aggressive Behaviour, Teach Adaptive Skills and Teach Social Skills. It also focused on increasing appropriate behaviour and social skills, increasing initiation of play activities, increasing task behaviours and reducing tantrum behaviours.

Wilkins (2010) analyzed the relationship between social skills and challenging behaviours in children with Autism Spectrum Disorders and divided into two parts. The findings of this study were (1) the relationship between social skills and challenging behaviours was found in children and adolescents with Autistic Spectrum Disorder when compared to their typically developing peers (2) the social skill deficits predicted the presence of challenging behaviour in children with severe symptoms of Autistic Spectrum Disorder.

Koegel, Vernon and Koegel (2009) evaluated on Improving Social Initiations in Young Children with Autism using reinforces with Embedded Social Interactions. The Researcher used an ABAB research design with three children with autism and the participants were under the age of 5 years with the presence of persistent social deficits in eye contact. The observations were done in the non embedded social condition and embedded social situation. The finding

indicated that the sessions with embedded social interactions showed the increased level of child initiated social engagement, improved non verbal dyadic orienting and more significant improvement of children when compared to the non embedded social interaction.

Eldevik, Hastings, Hughes, Jahr, Eikeseth and Cross (2009) carried out a meta analysis of Early Intensive Behavioural Intervention for Children with Autism. They concluded that early intensive behavioural intervention related to improvements in Intelligence Quotient (large to moderate level from a low level) and it is associated with the adaptive behaviour in children with Autistic Spectrum Disorder. The result showed significant improvements with early intensive behavioural treatment when compared to no intervention or eclectic treatment.

Tsao (2008) aimed to relate the social, language and play behaviour of autistic children and to provide the intervention reflecting the variety of objectives. It revealed that teaching play activities for autistic children proved to be beneficial. Play improved their language development, cognitive development and also their social ability.

Dominick, Davis, Lainhart, Flusberg and Edstein (2007) examined on atypical behaviours in autistic children and language impairment children. The details of children were collected from the parents through the interview method with the eating, sleeping habits and language impairment. The symptoms of atypical eating behaviour, abnormal sleep patterns, temper tantrums, self injurious behaviour were significantly common in children with Autism Spectrum Disorder than Children with a history of Language Impairment.

Mackay, Knott and Dunlop (2007) scrutinized on focusing on the development of social interaction and understanding in individuals with Autistic Spectrum Disorder through group work intervention. The Researcher administered the intervention on social and emotional perspective taking, conservation skills and friendship skills. Thirty eight boys and 8 girls of in age range of 6 to 16 years were allotted to one intervention group among 6 groups. The intervention was given for 12 to16 weeks with the period of one and half hours weekly session. The results indicated a significant difference when compared to the normative population and the parent ratings also showed the sustained changes in their key factors. The group work intervention improved social communication in children and adolescents.

Murphy, Brown, Wing, Gould, Shah and Holmes (2005) examined on Chronicity of Challenging Behaviours in People with Severe Intellectual Disabilities or Autism. One hundred and sixty six children with autism and severe intellectual disabilities were assessed with skills, social impairments and challenging behaviours with interview method. The same measures were reassessed after twelve years. The study revealed that abnormal behaviours tend to reduce

with age and associated with poor language skills and related to the low quality of social interaction.

Reese, Richman, Belmont and Morse (2005) conducted a study on Functional Characteristics of Disruptive Behaviour in Developmentally Disabled Children with and without Autism. The participants were 23 children with autism and 23 children without autism and administered by functional behavioural assessment interview to find out the disruptive behaviours from the parents. The study found that disruptive behaviours occurred in autism children was to maintain their access to engage in repetitive behaviours or to avoid the unpleasant sensory stimuli. The children without autism also had disruptive behaviours for reasons like to get attention or to prevent demanding from parents or caregivers.

Bauminger (2002) evaluated the effectiveness of cognitive behavioural intervention for the facilitation of the social emotional understanding and social interaction of children with autism. Fifteen High Functioning Autism Children in the age range of 8 to 17 years old. The measures included the problem solving and emotion performance, observations of social interaction and teacher rated social skills. The results showed that children were more likely to initiate positive social interaction with peers after the intervention. The children improved their ability to share their experience with their peers and started to show interest towards their peers, along with the improvement in eye contact. Children also scored high in teacher rated social skills in assertion and cooperation after the intervention.

Eikeseth, Smirth, Jahr and Eldevik (2002) evaluated on behavioural treatment for children with autism. Twenty Five participants were selected in the age group of 1 to 7 years and grouped into two behaviour treatment (N=13) and eclectic treatment (N=12) with intensive. The results indicated that the children who received behavioural treatment showed more considerable gain than the other.

Shabani, Katz, Wilder, Beauchamp, Taylor, Fischer (2002) examined on Increasing Social initiations in Children with Autism by seeing the effect of a tactile prompt. ABAB design was used to find the effect of a prompting device, 3 children with Autistic Spectrum Disorder were selected for free play activities along with their peers. Results showed that the verbal initiation for 3 children was increased with the help of tactile prompt and response to peers was also high.

METHOD

Chapter 3

Method

The study on 'Effectiveness of Behaviour Modification in Managing the Problem Behaviour and Social Interaction among Autistic Children' was carried out in the following steps:

- Operational Definitions
- Objectives
- Hypotheses
- Area
- Sample
- Institutional Human Ethical Committee
- Inclusion Criteria
- Exclusion Criteria
- Tools
- Procedure
- Analysis of Data

Operational Definition

Problem Behaviour

The behaviours that cause hinderance to social relations, communications and the individual's learning and causes harm to an individual, family members, peers and others.

Social Interaction

Social Interaction is an exchange between two or more individuals and is an important factor to involve in the society.

Objectives

The main objectives of the study are as follows:

- To examine the socio demographic details among Autistic Children.
- To find out the differences in Problem Behaviour and Social Interaction based on influence of Phone and Television among Autistic Children.

- To study the effectiveness of Behaviour Modification in Managing Problem Behaviour and enhancing Social Interaction among Autistic Children.
- To find out the type of delivery of the autistic Mother

Hypotheses

- There will be a significant difference in Problem Behaviour and Social Interaction among Autistic Children based on influence of Television.
- There will be a significant difference in Problem Behaviour and Social Interaction among Autistic Children based on Phone usage.
- There will be a significant difference in Problem Behaviour and Social Interaction among Autistic Children based on Siblings.
- There will be a significant reduction in the Problem Behaviour among Autistic Children through Behaviour Modification
- There will be a significant improvement in the Social Interaction among Autistic Children through Behaviour Modification

Area

The participants were selected from Kaumaram Prashanthi Academy, Coimbatore. The reasons for choosing this area are as follows:

- Availability of the required number of participants.
- Permission and Facilities provided by the authorities.
- Convenience of the Researcher.
- The willingness of the parents of the Autistic Children to allow their wards to participate in the Action Research.

Sample

Thirty one Autistic Children in the age range of 5 to 12 years were selected by Purposive Sampling Method. It is a Non Probability Sampling Method and it is selected based on characteristics of a population and objective of the study (Ashley Crossman, 2018).

Human Ethical Committee

The Institutional Human Ethics Committee of the University granted approval to the Research Proposal No. IHEC/19-20/PSY/20 entitled on “Effectiveness of Behaviour

Modification in managing the Problem Behaviour and Social Interaction among Autistic Children”. The Approval number for the same is AUW/IHEC/PSY-19-20/XMT-20.

Inclusion Criteria

- Autistic children with the age range of 5 to 12 years.
- Autistic children having problem behaviours and face difficulty in social interaction

Exclusion Criteria

- The Children without Autism in the special school.
- Autistic individual not belong to the age range of 5 – 12 will not be included

Consent Form

The Researcher developed the Consent Form and it helps to understand the willingness of the participants.

Socio Demographic Status Profile

The Researcher developed the Sociodemographic Status Profile which was used for gathering information about the participants, including initials, age, gender and place of living.

Problem Behaviour Checklist

The Problem Behaviour Checklist (1999) was constructed and standardized by Vimala Veeraghavan and Archana Dogra. This checklist consists of 58 behavioural problems with the three categories of responses, the parents or caregivers had to be assessed with the degree of the problems which were related to their children. The checklist had three alternatives “Most often”, “Occasionally” and “Never”. The checklist has a reliability value of 0.85 and has content validity.

Screen for Social Interaction

The Screen for Social Interaction was constructed and standardised by Ghuman and Folstein (2012). The scale consisted of 54 items of four point scale such as “Almost Never, Some of the Time, Most of the Time and Almost All of the Time”. The lower scores indicate the risk factors of the children to have Autism. The Internal Consistency is 0.76 and Test and Retest Reliability of the scale is 0.88.

Procedure

The data was collected from the teacher or parent of the autistic children. They were assigned to the Experimental Group. The consent form was given to parents or teacher of the

children before proceeding with the therapy. The Researcher developed rapport with the children for few sessions. The intervention was given for 12 sessions with the duration of one hour, weekly twice. The intervention session was completed and reassessment with the same set of questionnaires.

Experimental Design

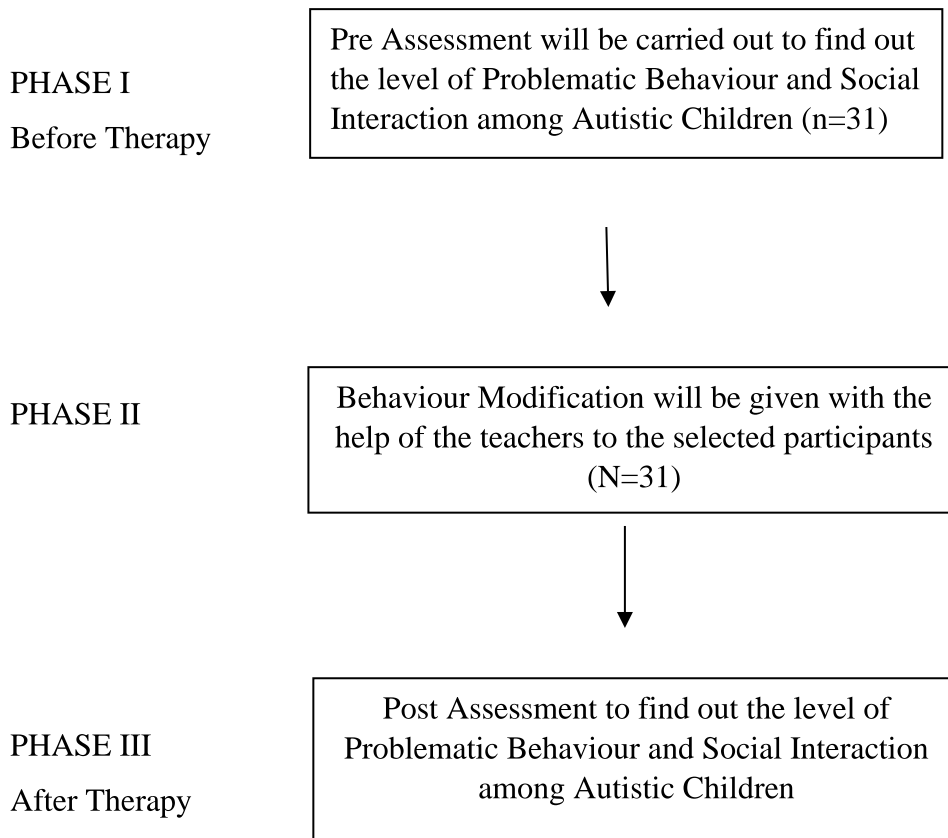


Figure 1

Flow Chart

Psychological Intervention

The intervention was done for 12 sessions for each individual focusing on improving their problem behaviour and social interaction. In social interaction, the eye contact was the major factor focused in this study.

Behavior modification helps to reinforce the desirable behaviours and remove or reduce the undesirable or maladaptive behaviours. It also helps the caregivers or parents to how to handle the child before, during, after and also between the episodes of problem behaviours. In this process, antecedents and consequences must be identified for the problem behaviour

(Scott, Jain & Cogburn, 2020). The behaviour is observable and measurable. The ABC model is used and found to be effective while focusing on changing or modifying a behaviour.

A – Antecedent – The event responsible for the behaviour.

B – Behaviour – The action or response to the event which can be seen and measure. The behaviour refers to what the student does in response to the antecedent and is sometimes referred to as "the behaviour of interest" or "target behaviour".

C – Consequence – The event that precedes the behaviour, which lies as a reason for the behaviour to reoccur.

Step 1: Rapport Building

The rapport was built with autistic children by spending time with them and engaging them with play activities and observing their preferences. Rapport is building a positive relationship with that individual. Once the child developed the rapport, the undesirable behaviours are changed by shaping them with desirable behaviour.

Step 2: Interventional Programme

Reinforcement

Reinforcement is applied to strengthen the behaviour which is coming as a result of antecedent stimuli. The main goal of this technique is to increase the behaviour. This effect is measured by frequency of behaviour, longer duration, greater magnitude. It is of two types – Positive Reinforcement and Negative Reinforcement. Positive Reinforcement is applied when it has the chances of increasing the desirable behaviour in the similar environment. An example: When a teacher praises a student by giving him/her a star for his good answer. The praise that he/she receive is a positive reinforcer strengthening the students behaviour of answering the teacher. Negative reinforcement is applied when the rate of behaviour increases by removing the stimulus that creates an aversion in an individual. An example: A girl complete her homework on time, and this behaviour is followed by negative reinforcer by the parent stops beating and scolding the child to complete the homework. So here stopping the aversion of beating and scolding acts as a negative reinforcer. There are two kinds of negative reinforcement (1) Escape and (2) Active Avoidance.

Schedules of Reinforcement

1. Fixed Ratio – the reinforcement will be given for every n^{th} response. The Therapist can decide the n like for every two correct answers, teacher will give a chocolate.
2. Fixed Interval – the reinforcement will be given after n amount of time. The teacher gives chocolate if the child gives correct response in two minutes.

Skinner’s research on schedules of reinforcement shows that they are effective in modifying, controlling and shaping a behaviour (Schultz, 2013).

Prompting

A prompt is defined as a cue or hint that would be used to induce a particular behaviour in a child with certain behavioural patterns. It focuses on increasing desired behaviours and skill acquisition. Prompting technique was used to increase the eye contact of the autistic child. In the beginning of this technique, the object wanted by the child will be placed at the eyelevel of the instructor. This will be kept practicing for three to four times. The child will start look the eye level of the instructor. The Child will be given a prompt to look and ask the object he or she wants. Once the child developed the eye contact, the reward will be given.

Step 3: Maintenance of the Desired Behaviour

The same technique will be continued and also taught to the Special Educator and the parents to see better improvement in their autistic children.

Analysis of Data

The Mean, Standard Deviation and t test were computed to analyse the data using Statistical Package for the Social Sciences 20.0 version (SPSS).

RESULTS AND DISCUSSION

Chapter 4
Results and Discussion

The purpose of the study is to explore the "Effectiveness of Behaviour Modification in Managing Problem Behaviour and Social Interaction among Autistic Children". The result of the study was analyzed, tabulated and discussed.

Section I shows the results of percentage analysis of Demographic data such as age and gender.

Section II shows the results of Mean and Standard Deviation of Psychological Variables Before and After Intervention programme.

Section III shows the results of the demographic factors influencing the Problem Behaviour and Social Interaction among Autistic Children

Section IV shows the results of effectiveness of Behaviour Modification in managing the Problem Behaviour and Social Interaction among Autistic Children.

Section I

Section I show the percentage analysis of Demographic Variables.

Table 1

Demographic Variables of the Autistic Children N=31

Variables		N	Percent
Gender	**Male**	23	74
	Female	8	26
Exposure to Television	**Yes**	13	42
	No	18	58
Phone Usage	**Yes**	11	35
	No	20	65
Number of Sibling	**Yes**	19	61
	No	12	39
Types of Delivery	**Normal**	11	35
	Caesarean	20	65

Percentages are rounded off

The analysis and documentation of the demographic data collected from the participant is an important aspect of the study. It helps to provide the details that may be the factor influencing the variables. Male participants were 74% and 26% were Female Autistic Children, 61% had siblings and 39% only child, 42% were spend lot of time watching Television and 58% not had the exposure, 35% were using mobiles and 65 % were not using it, 35 % were born by normally and 65 % were caesarean delivery.

Section II

Section II presents the results of Mean and Standard Deviation of Psychological Variables Before and After Intervention programme

Table 2

Mean and Standard Deviation of Psychological Variables Before and After Intervention Programme **N=31**

Psychological Variables	Before Mean	Intervention Standard Deviation	After Mean	Intervention Standard Deviation
Problem Behaviour	82.94	7.57	81.77	7.59
Social Interaction	18.48	3.23	17.77	3.63

Section III

Section III presents the results of the demographic factors influencing the Problem Behaviour and Social Interaction among Autistic Children

Table 3

Siblings influence on Problem Behaviour and Social Interaction among Autistic Children

N= 31

Variable	Presence of Siblings	Mean	Standard Deviation	t value
Problem	Yes			
Behaviour	No	81.77	7.59	1.31 N. S.
Social	Yes			
Interaction	No	17.77	3.63	2.56*

*** = Significant at 0.05 level** **N. S. = Not Significant**

Table 3 shows the influence of siblings on the Problem Behaviour and Social Interaction among Autistic Children. The t value 1.31 showed that the presence of siblings doesn't have any influence on autistic children. The t value 2.56 indicated that the social interaction was found to have influenced by siblings of autistic children. Itzchak, Nachshon and Zachor (2019) found that the sibling of autism helps autistic children to learn how to socialize with others. The Children with Autism gradually develop the skill in improving the interaction with siblings like sharing things, playing with them. The enhancement will be seen in the interactional ability of autistic children with the presence of their sibling and this was supported by Knott, Lewis and Williams (2007). Hence the Alternate Hypothesis, "**There will be a significant difference in Problem Behaviour and Social Interaction based on Siblings among Autistic Children**" is partially accepted.

Table 4

Influence of Television on Problem Behaviour and Social Interaction among Autistic Children **N=31**

Variable	**Exposure to TV**	**Mean**	**Standard Deviation**	**t value**
Problem Behaviour	Yes No	81.77	7.59	2.75**
Social Interaction	Yes No	17.77	3.63	0.95N. S.

**** = Significant at 0.01 level** **N. S. = Not Significant**

Table 4 shows that influence of television on Problem Behaviour and Social Interaction among Autistic Children. It was found that television influences the problem behaviour of autistic children. They get adapted to the sounds, images and videos they were seeing in the television. They exhibited problematic behaviours when they were not allowed to watch television. The social interaction doesn't have influences on exposing to television. This may be due to that they live in their own world even though they were exposed to television. Hence the Alternate Hypothesis, "**There is a significant difference in Problem Behaviour and Social Interaction based on influence of Television**" is partially accepted.

Table 5

Impact of Phone Usage on Problem Behaviour and Social Interaction among Autistic Children **N=31**

Variable	**Phone**	**Mean**	**Standard Deviation**	**t value**
Problem Behaviour	1 2	81.77	7.59	1.54N. S.
Social Interaction	1 2	17.77	3.63	0.77N. S.

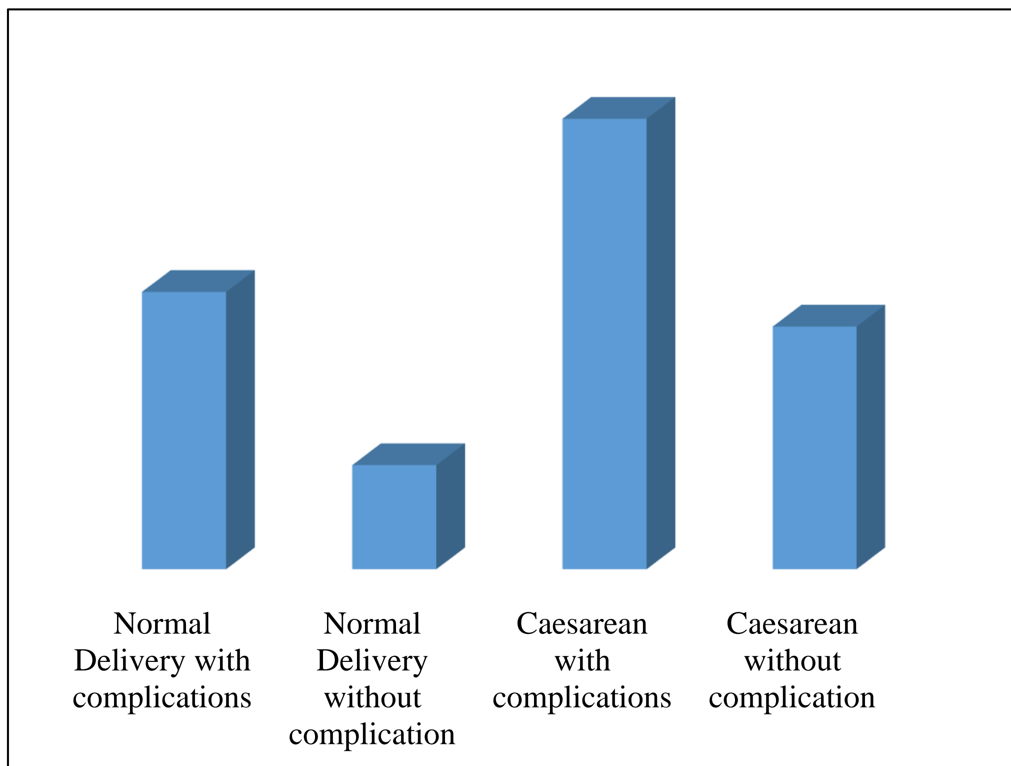
N. S. = Not Significant

Table 5 shows the impact of phone usage on Problem Behaviour and Social Interaction among Autistic Children. The phone usage has not influenced both the problem behaviour and social interaction of the autistic children. This may be due to the awareness that parents have

regarding the effects of Phone usage, so the time given for them with screen was maintained. Hence the Alternate Hypothesis "**There will be a significant difference in the Problem Behaviour and Social Interaction based on Phone Usage**" is rejected.

Figure 2

Type of Delivery in Autistic Mother



Section IV

Section IV presents the results of Effectiveness of Behaviour Modification in managing the Problem Behaviour and Social Interaction among Autistic Children.

Table 6

Behaviour Modification in reducing Problem Behaviour among Autistic Children N=31

Variables	Therapy	Mean	Standard Deviation	t value
Problem Behaviour	**Before Intervention**	82.94	7.57	9.40**
	After Intervention	81.77	7.59	

**** = Significant at 0.01 level**

Table 6 shows the Behaviour Modification in reducing the problem behaviour among Autistic Children and the t value is 9.40 and it clearly represents the significant difference in Problem Behaviour Before and After Intervention.The behaviour which is problematic was shaped by desirable behaviour with the reinforcement. The children started to perform the desired behaviour for receiving the reinforcement. Prasad and Pramod (2020) explored on behaviour modification techniques for Autism. They used prompting and secondary reinforcement for reducing tantrums and behaviour problems. The results indicated that there was a progressive improvement in treating autism among young children by using behaviour modification techniques. Hence the Alternate Hypothesis, "**There will be a significant reduction in the level of Problem Behaviour among Autistic Children through Behaviour Modification**" is accepted.

Table7

Behaviour Modification in enhancing Social Interaction among Autistic Children N=31

Variable	Before Mean	Intervention Standard Deviation	After Mean	Intervention Standard Deviation	t Value
Social Interaction	18.48	3.23	17.77	3.63	2.14**

** = Significant at 0.01 level

Table 7 shows the Behaviour Modification in reducing the problem behaviour among Autistic Children and the t value is 2.14 which represent the significant difference in Social Interaction Before and After Intervention. Since the reinforcement is given for the appropriate and achieved actions by prompting, the children learned to start interacting with others. Shabani, Katz, Wilder, Beauchamp, Taylor, Fischer (2002) examined on Increasing Social initiations in Children with Autism. The results showed that the verbal initiation of autistic children was increased and their response to peers was high. Hence the Alternate Hypothesis, "**There will be a significant reduction in the level of Social Interaction among Autistic Children through Behaviour Modification**" is accepted.

SUMMARY AND CONCLUSION

Chapter 5

Summary and Conclusion

The study on 'Effectiveness of Behaviour Modification in Managing Problem Behaviour and Social Interaction among Autistic Children' was carried out with the following objectives.

- To examine the sociodemographic details among Autistic Children.
- To find out the differences in Problem Behaviour and Social Interaction based on influence of Phone and Television among Autistic Children.
- To study the effectiveness of Behaviour Modification in Managing Problem Behaviour and enhancing Social Interaction among Autistic Children.
- To find out the type of delivery of the Autistic Mother

The study was conducted in the Kaumaram Prashanthi Academy, Coimbatore. Thirty One samples were selected for the study. The Autistic Children were selected using Purposive Sampling Method, so as to fulfill both the inclusion and exclusion criteria. The study was carried out after obtaining the Consent's form from the participants, they were ensured that confidentiality will be maintained. The tools used were Demographic Status Profile, Problem Behaviour Checklist and Screen for Social Interaction. After the collection of data, the intervention was given for 12 sessions with the duration of one hour, weekly twice.

Hypotheses

- There will be a significant difference in Problem Behaviour and Social Interaction among Autistic Children based on influence of Television.
- There will be a significant difference in Problem Behaviour and Social Interaction among Autistic Children based on Phone usage.
- There will be a significant difference in Problem Behaviour and Social Interaction among Autistic Children based on Siblings.
- There will be a significant reduction in the Problem Behaviour among Autistic Children through Behaviour Modification
- There will be a significant improvement in the Social Interaction among Autistic Children through Behaviour Modification

Conclusion

- There was no significant difference in Problem Behaviour based on Siblings among Autistic Children
- There was a significant difference in Social Interaction based on Siblings among Autistic Children
- There was significant difference in Problem Behaviour based on influence of television among Autistic Children
- There was no significant difference in Social Interaction based on influence of television among Autistic Children
- There was no significant difference in Problem Behaviour and Social Interaction based on Phone Usage among Autistic Children
- Behaviour Modification helped in reducing Problem Behaviour and enhanced the Social Interaction among Autistic Children.

Limitations

- Participants were only from Coimbatore Region
- Very less male participants
- Extraneous variables were not considered
- The more number of participants would have yielded better results

Recommendations

- Behavioural Intervention should be made as an mandatory in the Special Schools
- Counsellors or Psychologists should be appointed in schools

Suggestions for Further Research

- The participants can be included in a larger number to assess the differences in the variables
- The duration of the intervention could have been increased to provide a significant relationship among the variables
- The research might be extended to the diversified and cross cultural sample

REFERENCE

Reference

Akemoglu, Y. & Tomeny, K. R. (2020). A Parent Implemented Shared Reading Intervention to Promote Communication Skills of Pre-schoolers with ASD. *Journal of Autism and Developmental Disorders*. Retrieved from https://doi.org/10.1007/s10803-020-04757-0.

Alexander, A. E. (2017). Effectiveness of Behaviour Modification Techniques on Problem Behaviours in Differently Abled Children: A Case Study. *International Journal of Scientific Research*, 4 (4).

Andzik, N. R., Smith, E. M. & Neef, N. A. (2020). Using a Token Economy to Treat Escape – Maintained Problem Behaviour without Extinction. *Behaviour Modification*, Retrieved from https://doi.org/10.1177/0145445520966762.

Arora, N. K., Nair, M. K. C., Gulati, S., Deshmukh, V., Mohapatra, A., Mishra, D., Patel, V., Pandey, R. M., Das, B. C., Divan, G.,Murthy, G. V. S., Sharma, T. D., Sapra, S., Aneja, S., Juneja, M., Reddy, S. K., Suman, P., Mukherjee, S. B., Dasgupta, R., Tudu, P., Das, M. K., Bhutani, V. K., Durkin, M. S., Martin, J. P., Silberberg, D. H., Sagar, R., Ahmed, F., Babu, N., Bavdekar, S., Chandra, V., Chaudhuri, Z., Dada, T., Dass, R., Devi, M. G., Remadevi, S., Gupta, J. C., Handa, K. K., Kalra, V., Karande, S., Konanki, R., Kulkarni, M., Kumar, R., Maria, A., Masoodi, M. A., Mehta, M., Mohanty, S. K., Nair, H., Natarajan, P., Niswade, A. K., Prasad, A., Rai, S. K., Russell, P. S. S., Saxena, R., Sharma, S., Singh, A. K., Singh, G. B., Sumaraj, L., Suresh, S., Thakar, A., Parthasarathy, S., Vyas, B., Panigrahi, A., Saroch, M. K., Shukla, R., Rao, K. V. R., Silveria, M. P., Singh, S. & Vajaratkar, V.(2018). Neurodevelopmental Disorders in Children aged 6 – 9 Years: Population Based Burden Estimates Across Five Regions in India. Retrieved from https://doi.org/10.1371/journal.pmed.1002615

Baird, G., Simonof, E., Pickles, A., Chandler, S., Loucas, T., Meldrum, D. (2006). Prevalence of Disorders of the Autism Spectrum in a Population Cohort of Children in South Thames: The Special Needs and Autism Project (SNAP). *Lancet*, 368, 210–215.

Balakrishnan, S, K. & Alias, A. (2017). Usage of Social Stories in Encouraging Social Interaction of Children with Autism Spectrum Disorder. *Journal of ICSAR*, 1 (2), 91- 97.

Bauminger, N. (2002). The Facilitation of Social-Emotional Understanding and Social Interaction in High-Functioning Children with Autism: Intervention Outcomes. *Journal of Autism and Developmental Disorders*, 32 (4), 283 – 298.

Bene, K. & Lapina, H. (2020). A Meta-analysis of Sibling Mediated Intervention for Brothers and Sisters who have Autism Spectrum Disorder. *Review Journal of Autism and Developmental Disorders. Retrieved from* https: doi.org/15.1007/s40489-020-00212.

Bharathi, G., Venugopal, A. & Vellingiri, B. (2019). Music Therapy as a Therapeutic Tool in Improving the Social Skills of Autistic Children. *Egyptian Journal of Neurology, Psychiatry and Neurosurery,* 55:44.

Boettcher, Minjarez, M., Mercier, E. M., Williams, S. E. & Hardan, A. Y. (2013). Impact of Pivotal Response Training Group Therapy on Stress and Empowerment in Parents of Children with Autism. *Journal of Positive Behaviour Interventions*, 15, 71-78. Retrieved from https://doi:10.1177/1098300712449055

Boner, J. M. (2014). How Parents Use Behaviour Modification with their Children, Autism Spectrum Disorder. *Master of Social Work Clinical Research Papers*. Retrieved from https://sophia.stkate.edu/msw_papers/291.

Boonen, H., Maljaars, J., Lambrechts, G., Zink, I., Leeuwen, K. V. & Neons, I. (2014). Behaviour Problems among School-Aged Children with Autism Spectrum Disorder: Associations with Children's Communication Difficulties and Parenting Behaviours. *Research in Autism Spectrum Disorders*, 8, 716- 725.

Booth, N. & Keenan, M. (2018). Discrete Trial Teaching: A Study on the Comparison of Three Training Strategies. *Interdisciplinary Education and Psychology,* 2 (2), 1 – 13.

Boyd, B. A., McDonough, S. G. & Bodfish, J. W. (2012). EvidenceBased Interactions for Repetitive Behaviours in Autism. *Journal of Autism and Developmental Disorders*, 42, 1236-1248.

Bumin, G., Huri, M., Salar, S. & Kayihan, H. (2015). Occupational Therapy in Autism. Retrieved from https://doi:10.5772/59168.

Chakrabarti, S. & Fombonne, E. (2005). Pervasive Developmental Disorders in Preschool Children: Conformation of High Prevalence. *American Journal of Psychiatry*, 162 (6), 1133 – 1141.

Christy, M. H. C., Carpenter, M., Le, L. & Kellet, K. (2002). Using the Picture Exchange Communication System with Children with Autism: Assessment of Picture Exchange

Communication System Acquisition, Speech, Social Communicative Behaviour and Problem Behaviour. *Journal of Applied Behaviour Analysis,* 35 (3), 213-231.

Deckers, A., Roelofs, J., Muris, P. & Rinck, M. (2014). The Desire for Social Interaction in Children with Autism Spectrum Disorders. *Research in Autism Spectrum Disorders*, 8 (4), 449- 453.

Dere, Z. (2018). Analysing Social Play and Social Interaction of a Child with ASD in the inclusive Kindergarten Education. *European Journal of Special Education Research*, 3 (4), 220- 231.

Dominick, C., Davis, N. O., Lainhart, J., Flusberg, H. T. & Edstein, S. (2007). Atypical Behaviour in Children with Autism and Children with a History of Language Impairment. *Research in Developmental Disabilities*, 28, 145-162.

Downie, H. W., Wong, B., Hanna, K. & Cortese, S. (2020). Research Review: A Systematic Review and Meta-Analysis of Sex or Gender Differences in Social Interaction and Communication in Autistic and Non-Autistic Children and Adolescents. *Journal of Child Psychology and Psychiatry. Retrieved from* doi: 10.1111/jcpp.13337.

Eikeseth, S., Smirth, T., Jahr, E. & Eldevik, S. (2002). Intensive Behavioural Treatment at School for 4 to 7- Year Old Children with Autism: A One- Year Comparison-Controlled Study. *Behaviour Modification*, 26 (1), 49-68.

Eldevik, S., Hastings, R. P., Hughes, J. C., Jahr, E., Eikeseth, S. & Cross, S. (2009). A Meta-Analysis of Early Intensive Behavioural Intervention for Children with Autism. *Journal of Clinical Child and Adolescent Psychology*, 38 (3), 439-450.

Fargo, C. (2013). The Use of Virtual Reality for Teaching Social Skills to Middle School Students with Autism. Retrieved from https://rdw.rowan.edu/etd/208.

Hilton, C., Ratcliff, K., Collins, D., Flanagan, J. & Hong, I. (2019). Flourishing in Children with Autism Spectrum Disorders. *International Society for Autism Research*, 12, 952-966.

Humphrey, N. & Symes, N. (2011). Peer Interaction Patterns among Adolescents with Autism Spectrum Disorders (ASDs) in Mainstream School Setting. *Autism, Sage Publications*, 1362-1363.

Itzchak, E. B., Nachshon, N. & Zachor, D. A. (2019). Having Siblings is Associated with Better Functioning in Autism Spectrum Disorder. *Journal of Abnormal Child Psychology*, 47 (5), 921- 931.

Johnston, J. M., Foxx, R. M., Jacobson, J. W., Green, G. & Mulick, J. A. (2006). Positive Behaviour Support and Applied Behaviour Analysis. *Behavioural Analysis,* 29 (1), 51 - 74.

Juneja, M. & Sairam, S. (2018). Autism Spectrum Disorder – An Indian Perspective. Retrieved fromhttp://www.smgebooks.com/autism/chapters/AUT-18-12.pdf.

Kira, C. S. (2014). Autism Spectrum Disorder – The Complete Guide to Understanding Autism. *A Penguin Group,* 106-136.

Knott, F., Lewis, C. & Williams, T. (2007). Sibling Interaction of Children with Autism: Development Over 12 Months. *Journal of Autism Developmental Disorders,* 37, 1987-1995.

Koegel, R. L., Vernon, T. W. & Koegel, L. K. (2009). Improving Social Initiations in Young Children with Autism using Reinforces with Embedded Social Interactions. *Journal of Autism and Developmental Disorders*, 39, 1240-1251.

Kozlowski, A., Matson, J. L. & Riekse, R. D. (2012). Gender Effects on Challenging Behaviours in Autism Children and Adolescents. *Research in Autism Spectrum Disorders*, 6 (2), 958-964.

Kristensen, C. S., Jones, C. A. & Richards, C. (2020). The Prevalence of Self-Injurious Behaviour of Autism: A Meta-analytic Study. *Journal of Autism and Developmental Disorders*, 50, 3857- 3873.

Ladarola, S., Harrison, B. & Scahill, L. (2018). Teaching Parents Behavioural Strategies for Autism Spectrum Disorder: Effects on Stress, Strain and Competence. *Journal of Autism and Developmental Disorders*, 48 (4), 1031-1040.

LeBlanc, L. A. & Gillis, J. M. (2012). Behavioural Interventions for Children with Autism Spectrum Disorders. *Pediatric Clinics*, 59 (1), 147-164.

Lei, J. & Ventola, P. (2017). Pivotal Response Treatment for Autism Spectrum Disorder: Current Perspectives. *Neuropsychiatric Disorder and Treatment,* 13, 1613-1626.

Liao, S. T., Hwang, Y., Chen, Y., Lee, P., Chen, S. & Lin, L. (2014). Home Based Floor Time Intervention Program for Preschool Children with Autism Spectrum Disorders: Preliminary Findings. *Physical and Occupational Therapy in Pediatrics,* 34 (4), 356-367.

Lindgren, S., Wacker, D. & Waldron, D. (2016). Telehealth and Autism: Treating Challenging Behaviour at Lower Cost. *Paediatrics*, 137 (2), 167-175.

Lindor, E., Sivaratnam, C., May, T., Stefanac, N., Howells, K. & Rinehart, N. (2019). Problem Behavior in Autism Spectrum Disorder: Considering Core Symptom Severity and accompanying Sleep Disturbance. *Frontiers in Psychiatry*, 10, 1-10.

Liu, Y., Moore, D. W. & Anderson, A. (2015). Improving Social Skills in a Child with Autism Spectrum Disorder through Self-Management Training. *Behaviour Change*, 32 (4), 273 – 284.

Mackay, T., Knott, F. & Dunlop, A. W. (2007). Developing Social Intervention and Understanding in Individuals with Autism Spectrum Disorders: A Group Work Intervention. *Journal of Intellectual and Developmental Disability*, 32, 279- 290.

MacNaul, H. L. & Neely, L. C. (2018). Systematic Review of Differential Reinforcement of Alternative Behaviour without Extinction for Individuals with Autism. *Behaviour Modification*, 42 (3), 398 – 421.

Miltenberger, R. G. (2008). Behaviour Modification: Principles and Procedures. 4th Edition. *Thomson Woodsworth,* 1-20.

Minazir, K. M. M. & Kavith, M. O. T. (2016). A Study to Measure the Effectiveness of Differential Reinforcement for Stereotypical Behaviour in Autism Spectrum Disorder. *Biomedical and Pharmacology Journal,* 9 (2), 611- 614.

Modabbernia, A., Velhorst, E. & Reichenberg, A. (2017). Environmental Risk Factors for Autism: An Evidence Based Review of Systematic Reviews and Meta Analyses. *Molecular Autism*. Retrieved fromhttps://doi.org/10.1186/s13229-017-0121-4.

Murphy, G. H., Brown, J. B., Wing, L., Gould, J., Shah, A. & Holmes, N. (2005). Chronicity of Challenging Behaviours in People with Severe Intellectual Disabilities or Autism: A Total Population Sample. *Journal of Autism and Developmental Disorders*, 35 (4), 405 – 418.

Neitzel. J. (2010). Positive Behaviour Supports for Children and Youth with Autism Spectrum Disorders. *Preventing School Failure,* 54 (4), 247- 255.

Newcomb, E. T. & Hapogian, L. P. (2018). Treatment of Severe Problem Behaviour in Children with ASD and Intellectual Disabilities. *International Review of Psychiatry*, 30, 96-109.

Ozdemir, S. (2010). Social Stories: An Intervention Technique for Children with Autism. *Procedia Social and Behavioural Sciences*, 5, 1827- 1830.

Ozonoff, S., Young, G. S., Carter, A., Messinger, N., Zwaigenbaum, L., Bryson, S., Carver, L.J., Constantino, J. N., Dobkind, K., Hutman, T., Iverson, J., Lamda, R., Rogers, S.J. & Stone, L.W. (2011). Recurrence Risk for Autism Spectrum Disorders: A Baby Siblings Research Consortium Study. *Pediatrics*, 128 (3), 448 – 495.

Pas, E., Johnson, S. R., Larson, K. E., Brandenburg, L., Church, R. & Bradshaw, C. P. (2016). Reducing Behaviour Problems among Students with Autism Spectrum Disorder: Coaching Teachers in a Mixed Reality Setting. *Journal of Autism and Developmental Disabilities*, 46 (12), 3640-3652.

Plavnick, J. B. & Duenas, A. D. (2018). Brief Report: Effects of Video-Based Group Instruction on Spontaneous Social Interaction of Adolescents with Autism Spectrum Disorders, *Journal of Autism and Developmental Disorders*, 48 (6), 2231-2236.

Prasad, A. & Pramod, D. V. B. (2020). Behaviour Modification Techniques for Autism: A Case Exploration. *International Journal of Research and Review*, 7 (3), 501 – 506.

Raulston, T. J., Hansen, S. G., Machalicek, W., Mclnytre, L. L. & Carnett, A. (2019). Interventions for Repetitive Behaviours in Young Children with Autism: A Survey of Behavioural Practices. *Journal of Autism and Developmental Disorders*, 49, 3047 – 3059.

Reese, R. M., Richman, D. M., Belmont, J. M. & Morse, P. (2005). Functional Characteristics of Disruptive Behaviour in Developmentally Disabled Children With and Without Autism. *Journal of Autism and Developmental Disorders*, 35 (4), 419- 428

Reyes, N. M. & Scarpa, A. (2020). Emotion Regulation, Emotionality and Expression of Emotions: A link between Social Skills, Behaviour and Emotional Problems in Children with ASD and their Peers. *Research in Developmental Disabilities*, 106, 103770.

Scheeren, A. M., Koot, H. M. & Begeer, S. (2019). Stability and Change in Social Interaction Style of Children with Autism Spectrum Disorder: A 4 Year Follow-up Study. *Autism Research*, 1-8.

Scheeren, A. M., Koot, H. M., & Begeer, S. (2012). Social Interaction Style of Children and Adolescents with High-Functioning Autism Spectrum Disorder. *Journal of Autism and Developmental Disorders*, 42(10), 2046- 2055.

Schultz, D. P. & Schultz, S. E. (2013). Theories of Personality, 10th Edition, *Cengage Learning,* 310- 320.

Scott, H. K., Jain, A. & Cogburn, M. (2020). Behaviour Modification. *StatPearls Publishing*. Retrieved from https://www.ncbi.nlm.nih.gov/books/NBK459285/.

Shabani, D. B., Katz, R. C., Wilder, D. A., Beauchamp, K., Taylor, C. R. & Fisher, K. (2002). Increasing Social Initiations in Children with Autism. Effects of Tactile Prompt. *Journal of Applied Behavioural Analysis*, 35 (1), 79-83.

Skoufou, A. (2019). Social Interaction of Preschool Children with Autism Spectrum Disorders (ASD) – Characteristics and Educational Approaches. *SSRG International Journal of Economics and Management Studies*, 6 (6), 28-36.

Slocum, S. K., Yatros, N. & Scheithauer, M. (2020). Developing a Treatment for Hand-Clapping Maintained by Automatic Reinforcement using Sensory Analysis of Non-Contingent Reinforcement and Thinning. *Behavioural Interventions. Retrieved from* https://doi.org/10.1002/bin.1749.

Tang, K. & Wier, K. (2013). Verbal Behaviour Interventions. Retrieved from https://doi.org/10.1007/978-1-4419-1698-3_373.

Toscano, C. V. A., Carvalho, H. M. & Ferreira, J. P. (2018). Exercise Effects for Children with Autism Spectrum Disorder: Metabolic Health, Autistic Traits and Quality of Life. 125 (1), 126 – 146. Retrieved from doi:10.1177/0031512517743823.

Tsao, L. L. (2008). Social, Language and Play Behaviours of Children with Autism. *Behavioural Development Bulletin*, 14 (1), 40-51.

Vismara, L. A. & Rogers, S. J. (2010). Behavioural Treatments in Autism Spectrum Disorder. *Annual Review of Clinical Psychology,* 6, 447 – 468.

Weiss, M. J. (2013). Excerpted from Social skills and Adaptive Behaviour in Learners with Autism Spectrum Disorders. Retrieved from http://archive.brookespublishing.com/documents/Gerhardt_social-skills.pdf.

Wilkins, J. (2010). The Relationship between Social Skills and Challenging Behaviours in Children with Autism Spectrum Disorder, *LSU Doctoral Dissertations*. Retrieved from https://diditalommons.lsuedu/gradschool_disseratations/766.

Wong, C., Odom, S. L., Hume, K. A., Cox, A. W., Feetig, A., Kucharczyk, S., Brock, M. E., Plavnick, J.B., Fluery, V. P. & Schultz, T. R. (2015). Evidence-Based Practices for Children, Youth, Young Adults with Autism Spectrum Disorder: A Comprehensive Review. *Journal of Autism and Developmental Disorders*, 45, 1951-1966.

ANNEXURE

Annexure I

Informed Consent Form

Consent to participate in a research study

Conducted by the Dept. of Psychology, Avinashilingam University for Women,

Coimbatore.

Title of the project: Effectiveness of Behaviour Modification in Managing the Problem Behaviour and Social Interaction among Autistic Children

Researcher: Mrs.S.Subhashini, M.Phil in Counselling Psychology,

Avinashilingam Institute for Home Science and Higher Education for Women,

Coimbatore – 641 043.

Research Guide: Dr. S. Gayatridevi, Associate Professor , Department of Psychology, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore.

Consent Form

I am S.Subhashini, II M.Sc Applied Psychology, conducting a research study as a part of my curriculum for the completion of the course. The details collected through this study will be kept confidential and used for research purpose only. The participation in this study is entirely based on the willingness of the parents of the participant. The participation is Voluntary. Your Participation would be helpful for me in a great way. I thank each and every one for Participation.

Confidentiality Statement

As a participant, all data you share about the child will be kept strictly confidential.

I agree to participate in this research.

Name : _______________ Date : _____________ Signature :_________________

Annexure II

Case study Schedule

Child's Name:

Age:

Informant: Teacher/ Father/ Mother

Number of siblings:

Birth order:

Locality:

Identification of the Condition:

Type of Delivery of the child's mother:

Did the child engage in media? If Yes, the amount of time spent -

Did the child engage in mobile Phone? If Yes, the amount of time spent -

Major Problematic behaviour the informant has with the child:

Annexure III

Problem Behaviour Checklist

Does your child has

S.No	Questions	Most often	Occasio nally	Never
1	Fear of animals?			
2	Nail biting problems?			
3	Thumb sucking tendency?			
4	Involuntary wetting of the bed?			
5	Involuntary soiling of plants?			
6	Disturbed sleep?			
7	Increase in temper tantrums?			
8	Social withdrawal tendency?			
9	Tendency to babyish behaviour.			
10	Increased irritability?			
11	Speech categorized by frequent repetition/ prolongation of sounds or syllabus or words?			
12	Scholastic problems?			
13	Anxiety?			
14	Speech articulation defect?			
15	Examination phobia?			
16	Poor memory?			
17	Lack of attention?			
18	Lack of concentration?			
19	Fussy eating habits?			
20	Regression of previously acquired skills?			
21	Strong reluctance to share with sibling?			
22	Lack of positive regard for sibling?			
23	Few friendly interactions with siblings?			
24	Hostility, physical trauma or maliciousness towards sibling?			
25	Undermining tendencies towards sibling?			
26	Marked competition with siblings for the attention with an unusual degree of negative feelings?			
27	Persistent or recurrent fear/ avoidance of strangers and peers?			
28	Unrealistic, preoccupying worry that some untoward event such as the child being lost, kidnapped, admitted to hospital or killed, will separate him/ her from mother/ father/ grandparent/ any other?			
29	Unrealistic worry about possible harm befalling the attachment figure or a fear that they will leave and not return?			
30	Persistent reluctance/ refusal to go to school because of fear of separation?			
31	Persistent reluctance/ refusal to go to sleep without being near to the attachment figure?			
32	Persistent inappropriate fear of being alone or without parent the whole day?			
33	Repeated nightmares about separation?			
34	Repeated occurrence of physical symptoms (nausea, stomach ache, headache, vomiting) on occasions that involve separation such as leaving home to go to school?			
35	Excessive recurrent distress (crying, tantrums, social withdrawal) in anticipation or during or immediately following separation from the attachment figure?			

36	Self – injuries behaviour?			
37	Persistent and marked depression of mood; excessive misery, loss of interest and pleasure in usually enjoyable activities, self-blame, hopelessness?			
38	Aggressive behaviour?			
39	Defiant conduct?			
40	Excessive levels of fighting/ bullying?			
41	Cruelty to animals or other people?			
42	Severe destructiveness to property?			
43	Fire setting habits?			
44	Stealing habits?			
45	Repeated lying habits?			
46	Habit of truancy from school?			
47	Habit of running away from home?			
48	Habit of unusual frequent temper tantrums?			
49	Defiant provocative behaviour.			
50	Persistent severe disobedience?			
51	Isolation from and/or rejection by or unpopularity with other children?			
52	Lack of close friends?			
53	Hostile relations with adults?			
54	Resistance to authority?			
55	Deliberate attempts to annoy others?			
56	Annoying tendencies on trivial incidents.			
57	Blaming tendencies towards others for his mistakes/ difficulties.			
58	Violation of age appropriate social expectations in terms of manners, academic performance and compliance with adults, rules and regulations?			

Annexure IV

Screen for Social Interaction

No	Observation	Almost Never	Some of the time	Most of the time	Almost all of the time
1	When you talk to your child, does he/she look at you?				
2	Does your child try to get your attention to show you things?				
3	Does your child interact with you back and forth over a few turns using speech or sounds?				
4	Does your child greet you when you return home by making sounds or talking to you?				
5	Does your child greet you when you return home by hugging you?				
6	Does your child respond playfully by playing “dressing up” games?				
7	Does your child respond playfully by playing pretend games with dolls, cars, action figures, dollhouse?				
8	During meals does your child interact with you by making sounds or talking?				
9	During meals does your child show what food he/she likes by speech or making sounds?				
10	Does your child copy you by washing dishes, pretending to cook or mow the lawn, etc?				
11	Does your child show you things that he/ she had done and wants you to praise?				
12	Does your child smile when you praise him/ her?				
13	Can your child tell from the look on your face or the tone of your voice that you are angry?				
14	Does your child show interest in other children by watching them?				
15	Does your child show interest in other children by staying close to them?				
16	Does your child show interest in other children by joining in the play if they invite him/her?				
17	Does your child show interest in other children by showing concern if another child is upset?				
18	Is your child able to start a social exchange with other children?				
19	Is your child able to take turns in play?				
20	Does your child have playmates who he/ she prefers to play with?				
21	Does your child share toy and favourite objects with siblings or other children of his/ her age?				